Project Introduction

The objective of this Phase I project is to demonstrate InGaN materials are appropriate for high operating temperature single junction solar cells. Single junction InGaN test devices with bandgaps between 2.0 and 1.75 eV could provide power conversion in the 15-20% range while offering increased resistance to radiation damage. In this project, we will theoretically and experimentally optimize the doping profiles of p- and n-InGaN for high operating temperatures, fabricate test structures base on p-n junctions, and test the preliminary devices under concentrated sunlight and at temperatures from 100ºC to 250ºC. At the end of the Phase I, the technology will be at TRL 3.

Primary U.S. Work Locations and Key Partners

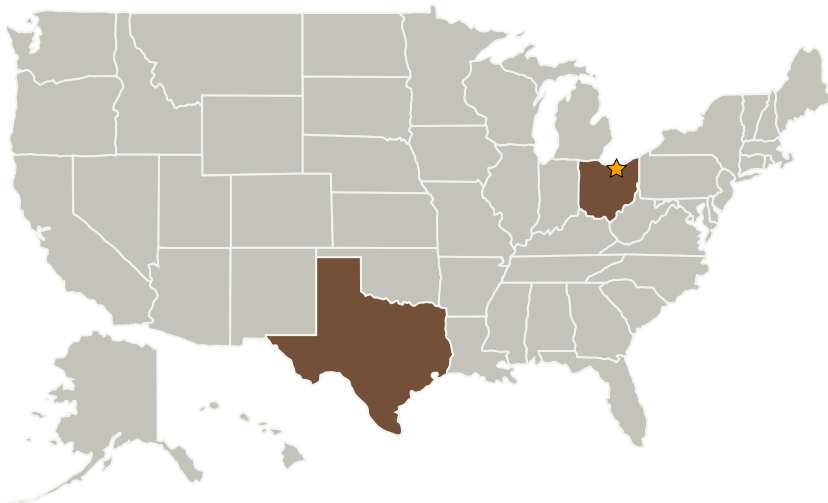| Organizations Performing Work	Role	Type	Location
⭐Glenn Research Center(GRC)	Lead Organization	NASA Center	Cleveland, Ohio
Integrated Micro Sensors, Inc.	Supporting Organization	Industry	Houston, Texas

InGaN High Temperature Photovoltaic Cells, Phase I

Table of Contents

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Glenn Research Center (GRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

For more information and an accessible alternative, please visit:
https://techport.nasa.gov/view/8100

Primary U.S. Work Locations	
Ohio	Texas

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX02 Flight Computing and Avionics
  └ TX02.1 Avionics Component Technologies
    └ TX02.1.1 Radiation Hardened Extreme Environment Components and Implementations